

Amendments to the Claims:

The following lists all claims and their status:

1-4903. (cancelled)

4904. (currently amended): A method of sequestering carbon dioxide ~~within~~in a hydrocarbon containing formation, comprising:

providing heat from one or more heaters to a portion of the formation to increase a permeability of the portion such that the permeability is substantially uniform;

allowing the portion to cool; and

storing carbon dioxide in the portion.

4905. (original): The method of claim 4904, wherein the permeability of the portion is increased to over 100 millidarcy.

4906. (original): The method of claim 4904, further comprising raising a water level in the portion to inhibit migration of the carbon dioxide from the portion.

4907. (currently amended): The method of claim 4904, further comprising heating the portion to release at least ~~a portion~~some of the stored carbon dioxide, and removing the released carbon dioxide from the portion.

4908. (previously presented): The method of claim 4904, further comprising pyrolyzing at least some hydrocarbons in the portion during the providing of heat to the portion, and removing pyrolyzation product from the formation.

4909. (previously presented): The method of claim 4904, further comprising producing synthesis gas from the portion during providing of heat to the portion, and removing synthesis gas from the formation.

4910. (currently amended): The method of claim 4904, wherein providing heat from one or more of the heaters to the portion comprises:

providing heat from one or more of the heaters to hydrocarbon ~~containing~~ material adjacent to one or more wellbores to increase a temperature of the hydrocarbon ~~containing~~ material to a temperature sufficient to support oxidation of the hydrocarbon ~~containing~~ material with an oxidizing fluid;

introducing the oxidizing fluid to the hydrocarbon ~~containing~~ material adjacent to the one or more wellbores to oxidize the hydrocarbons and produce heat; and

allowing the produced heat to transfer to the portion.

4911. (currently amended): The method of claim 4910, wherein at least one of the ~~one or more~~ heaters comprises an electrical heater.

4912. (previously presented): The method of claim 4910, wherein the temperature sufficient to support oxidation is in a range between approximately 200°C and approximately 1200 °C.

4913. (previously presented): The method of claim 4904, wherein providing heat from one or more of the heaters to the portion comprises circulating heat transfer fluid through one or more heating wells in the formation.

4914. (original): The method of claim 4913, wherein the heat transfer fluid comprises combustion products from a burner.

4915. (original): The method of claim 4913, wherein the heat transfer fluid comprises steam.

4916. (currently amended): The method of claim 4904, further comprising removing fluid from the formation during the providing of heat to the portion, and combusting ~~a portion~~some of the removed fluid to generate heat to heat the formation.

4917. (currently amended): The method of claim 4904, wherein at least ~~a portion~~some of the stored carbon dioxide comprises ~~excess~~ carbon dioxide produced from a hydrocarbon bed demethanation process prior to storing the carbon dioxide in the portion.

4918. (currently amended): The method of claim 4904, wherein at least ~~a portion~~some of the stored carbon dioxide was used for enhanced oil recovery prior to storing the carbon dioxide ~~within~~in the portion.

4919. (currently amended): The method of claim 4904, wherein at least ~~a portion~~some of the carbon dioxide comprises carbon dioxide generated in a fuel cell.

4920. (currently amended): The method of claim 4904, wherein at least ~~a portion~~some of the carbon dioxide comprises carbon dioxide formed as a combustion product.

4921. (original): The method of claim 4904, further comprising allowing the portion to cool by introducing water to the portion; and removing the water from the formation as steam.

4922. (original): The method of claim 4921, further comprising using the steam as a heat transfer fluid to heat a second portion of the formation.

4923. (currently amended): The method of claim 4904, wherein storing carbon dioxide in the portion comprises adsorbing carbon dioxide onto hydrocarbon ~~containing~~ material ~~within~~in the formation.

4924. (currently amended): The method of claim 4904, wherein storing carbon dioxide comprises passing a first fluid stream comprising the carbon dioxide and other fluid through the portion; adsorbing carbon dioxide onto hydrocarbon ~~containing~~ material ~~within~~in the formation; and removing a second fluid stream from the formation, wherein a concentration of the other fluid in the second fluid stream is greater than a concentration of the other fluid in the first fluid stream due to the absence of the adsorbed carbon dioxide in the second fluid stream.

4925. (previously presented): The method of claim 4904, wherein an amount of carbon dioxide stored in the portion is equal to or greater than an amount of carbon dioxide generated in the portion and removed from the formation during the providing of heat to the portion.

4926. (previously presented): The method of claim 4904, further comprising providing heat from three or more heaters to at least a portion of the formation, wherein three or more of the heaters are located in the formation in a unit of heaters, and wherein the unit of heaters comprises a triangular pattern.

4927. (previously presented): The method of claim 4904, further comprising providing heat from three or more heaters to at least a portion of the formation, wherein three or more of the heaters are located in the formation in a unit of heaters, wherein the unit of heaters comprises a triangular pattern, and wherein a plurality of the units are repeated over an area of the formation to form a repetitive pattern of units.

4928-5395. (cancelled)

5396. (previously presented): A method of sequestering a fluid in a hydrocarbon containing formation, comprising:

providing heat from one or more heaters to a portion of the formation to increase a permeability of the portion such that the permeability is substantially uniform;
allowing the portion to cool; and
storing a fluid in the portion.

5397. (previously presented): The method of claim 5396, wherein the permeability of the portion is increased to over 100 millidarcy.

5398. (currently amended): The method of claim 5396, further comprising heating the portion to release at least ~~a portion~~some of the stored carbon dioxide, and removing the released carbon dioxide from the portion.

5399. (previously presented): The method of claim 5396, further comprising pyrolyzing at least some hydrocarbons in the portion during the providing of heat to the portion, and removing pyrolyzation product from the formation.

5400. (previously presented): The method of claim 5396, further comprising producing synthesis gas from the portion during providing of heat to the portion, and removing synthesis gas from the formation.

5401. (currently amended): The method of claim 5396, wherein providing heat from one or more of the heaters to the portion comprises:

providing heat from one or more of the heaters to hydrocarbon ~~containing~~ material adjacent to one or more wellbores to increase a temperature of the hydrocarbon material to a temperature sufficient to support oxidation of the hydrocarbon ~~containing~~ material with an oxidizing fluid;

introducing the oxidizing fluid to the hydrocarbon ~~containing~~ material adjacent to the one or more wellbores to oxidize the hydrocarbons and produce heat; and

allowing the produced heat to transfer to the portion.

5402. (currently amended): The method of claim 5396, wherein providing heat from one or more of the heaters to the portion comprises circulating heat transfer fluid through one or more heating wells ~~within~~in the formation.

5403. (previously presented): The method of claim 5396, wherein the heat transfer fluid comprises steam.

5404. (currently amended): The method of claim 5396, further comprising removing fluid from the formation during heating of the formation, and combusting ~~a portion~~some of the removed fluid to generate heat to heat the formation.

5405. (currently amended): The method of claim 5396, wherein at least ~~a portion~~some of the stored carbon dioxide was used for enhanced oil recovery prior to storing the carbon dioxide ~~within~~in the portion.

5406. (previously presented): The method of claim 5396, further comprising allowing the portion to cool by introducing water to the portion; removing the water from the formation as steam; and using the steam as a heat transfer fluid to heat a second portion of the formation.

5407. (currently amended): The method of claim 5396, wherein storing carbon dioxide in the portion comprises adsorbing carbon dioxide onto hydrocarbon ~~containing~~ material ~~within~~in the formation.

5408. (previously presented): The method of claim 5396, wherein an amount of carbon dioxide stored in the portion is equal to or greater than an amount of carbon dioxide generated in the portion and removed from the formation during the providing of heat to the portion.

5409. (previously presented): The method of claim 5396, further comprising providing heat from three or more heaters to at least a portion of the formation, wherein three or more of the heaters are located in the formation in a unit of heaters, and wherein the unit of heaters comprises a triangular pattern.

5410. (previously presented): A method of sequestering carbon dioxide in a hydrocarbon containing formation, comprising:

providing heat from one or more heaters to a portion of the formation to increase a permeability of the portion such that the permeability is substantially uniform;

allowing the portion to cool to about 100 °C or less; and

storing carbon dioxide in the portion.

5411. (previously presented): The method of claim 5410, wherein the permeability of the portion is increased to over 100 millidarcy.

5412. (currently amended): The method of claim 5410, further comprising heating the portion to release at least ~~a portion~~some of the stored carbon dioxide, and removing the released carbon dioxide from the portion.

5413. (previously presented): The method of claim 5410, further comprising pyrolyzing at least some hydrocarbons in the portion during the providing of heat to the portion, and removing pyrolyzation product from the formation.

5414. (currently amended): The method of claim 5410, further comprising producing synthesis gas from the portion during the providing of heat to the portion, and removing synthesis gas from the formation.

5415. (currently amended): The method of claim 5410, wherein providing heat from one or more of the heaters to the portion comprises:

providing heat from one or more of the heaters to hydrocarbon ~~containing~~ material adjacent to one or more wellbores to increase a temperature of the hydrocarbon material to a temperature sufficient to support oxidation of the hydrocarbon ~~containing~~ material with an oxidizing fluid;

introducing the oxidizing fluid to the hydrocarbon ~~containing~~ material adjacent to the one or more wellbores to oxidize the hydrocarbons and produce heat; and

allowing the produced heat to transfer to the portion.

5416. (currently amended): The method of claim 5410, wherein providing heat from one or more of the heaters to the portion comprises circulating heat transfer fluid through one or more heating wells ~~within~~in the formation.

5417. (previously presented): The method of claim 5410, wherein the heat transfer fluid comprises steam.

5418. (currently amended): The method of claim 5410, further comprising removing fluid from the formation during heating of the formation, and combusting ~~a portion~~some of the removed fluid to generate heat to heat the formation.

5419. (currently amended): The method of claim 5410, wherein at least ~~a portion~~some of the stored carbon dioxide was used for enhanced oil recovery prior to storing the carbon dioxide ~~within~~in the portion.

5420. (currently amended): The method of claim 5410, further comprising allowing the portion to cool by ~~introducing~~introducing water to the portion; removing the water from the formation as steam; and using the steam as a heat transfer fluid to heat a second portion of the formation.

5421. (currently amended): The method of claim 5410, wherein storing carbon dioxide in the portion comprises adsorbing carbon dioxide onto hydrocarbon ~~containing~~material within the formation.

5422. (previously presented): The method of claim 5410, wherein an amount of carbon dioxide stored in the portion is equal to or greater than an amount of carbon dioxide generated in the portion and removed from the formation during the providing of heat to the portion.

5423. (previously presented): The method of claim 5410, further comprising providing heat from three or more heaters to at least a portion of the formation, wherein three or more of the heaters are located in the formation in a unit of heaters, and wherein the unit of heaters comprises a triangular pattern.

Response To Office Action Mailed May 16, 2003

A. Pending Claims

Claims 4904-4927 and 5396-5423 are currently pending. Claims 4904, 4907, 4910, 4911, 4916-4920, 4923, 4924, 5398, 5401, 5402, 5404, 5405, 5407, 5412, 5414-5416, and 5418-5421 have been amended for clarification and/or correction of typographical errors.

B. Double Patenting Rejections

The Examiner provisionally rejected claims 4904-4927 and 5396-5423 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 4892-4897 and 5158-5171 of copending Application No. 09/841,060 and claims 4896-4901 and 5404-5417 of copending Application No. 09/841,635. Applicant respectfully disagrees with these rejections. To expedite the case, however, a terminal disclaimer has been sent as a separate document.

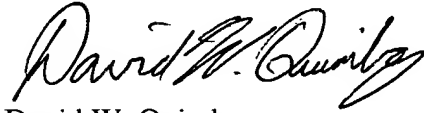
C. Additional Remarks

Applicant submits that all claims are in condition for allowance. Favorable consideration is respectfully requested.

Applicant believes that no fees are due with the filing of this document. If an extension of time is required, Applicant hereby requests the appropriate extension of time. If any fees are required, please appropriately charge those fees to Meyertons, Hood, Kivlin, Kowert & Goetzel, P.C. Deposit Account Number 50-1505/5659-08000/EBM.

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Respectfully submitted,



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